WHAT IS CLAIMED IS:

1.   A process for dynamically decoding two channel stereo into multi-channel sound comprising the steps of:

feeding left and right input signals to left and right front and surround channel outputs, respectively;

summing the left and right input signals to provide a summed signal;

determining when the summed signal is dominant; and

subtracting the right and left input signals from the left and right surround channel outputs, respectively, when the summed signal is dominant.

2.   A process according to claim 1 further comprising the step of feeding the summed signal to a center front channel output.

3.   A process according to claim 2 further comprising the step of differencing the right and left input signals to provide a center surround signal at a center surround channel output.

1   **4.**   A process for dynamically decoding two channel stereo into multi-channel

2   sound comprising the steps of:

3   feeding left and right input signals to left and right front and surround channel outputs,

4   respectively;

5   filtering the left and right input signals over a preselected bandwidth to provide left

6   and right filtered signals;

7   summing the left and right input signals to provide a summed signal;

8   determining when the summed signal is dominant; and

9   subtracting the left and right filtered signals from the right and left surround channel

10   outputs, respectively, when the summed signal is dominant.

1   **5.**   A process according to claim **4** further comprising the step of filtering the

2   summed signal over the preselected bandwidth to provide a center front signal at a center

3   front channel output.

1   **6.**   A process according to claim **5** further comprising the steps of:

2   differencing the right and left input signals to provide a differenced signal; and

3   filtering the differenced signal over the preselected bandwidth to provide a center

4   surround signal at a center surround channel output.

7.   A process for dynamically decoding two channel stereo into multi-channel sound comprising the steps of:

feeding left and right input signals to left and right front and surround channel outputs, respectively;

dynamically filtering the left and right input signals over a preselected bandwidth to provide left and right dynamically filtered signals;

summing the left and right input signals to provide a summed signal;

determining when the summed signal is dominant; and

subtracting the left and right dynamically filtered signals from the right and left surround channel outputs, respectively, when the summed signal is dominant.

8.   A process according to claim 7 further comprising the step of dynamically filtering the summed signal over the preselected bandwidth to provide a center front signal at a center front channel output.

9.   A process according to claim 8 further comprising the step of:

differencing the right and left input signals to provide a differenced signal; and

dynamically filtering the differenced signal over the preselected bandwidth to provide a center surround signal at a center surround channel output.

1   **10.**   A process for dynamically decoding two channel stereo into multi-channel

2 sound comprising the steps of:

3   splitting a left input signal and a right input signal into left and right bass and high

4 frequency band signals, respectively;

5   feeding the left and right high frequency band signals to left and right surround

6 channel outputs, respectively;

7   summing the left and right high frequency band signals to provide a summed high

8 frequency band signal;

9   determining when the summed high frequency band signal is dominant;

10   subtracting the right and left high frequency band signals from the left and right

11 surround channel outputs when the summed high frequency band signal is dominant;

12   subtracting the right and left high frequency band signals from the left and right high

13 frequency band signals, respectively,   when the summed high frequency band signal is

14 dominant to provide left and right processed high frequency band signals; and

15   combining the left bass band signal and the left processed high frequency band signal

16 and the right bass band signal and the right processed high frequency band signal to provide

17 left and right front channel outputs, respectively.

1   **11.**   A process according to claim **10** further comprising the step of feeding the

2   summed high frequency band signal to a center front channel output.

1   **12.**   A process according to claim **11** further comprising the step of differencing

2   the left and right high frequency band signals to provide a differenced high frequency band

3   signal at a center surround channel output.

1   **13.**   A process for dynamically decoding two channel stereo into multi-channel

2   sound comprising the steps of:

3   splitting a left input signal and a right input signal into left and right bass and high

4   frequency band signals, respectively;

5   filtering the left and right high frequency band signals over a preselected bandwidth

6   to provide left and right filtered signals, respectively;

7   summing the left and right high frequency band signals to provide a summed high

8   frequency band signal;

9   determining when the summed high frequency band signal is dominant;

10   subtracting the right and left filtered signals from the left and right high frequency

11   band signals, respectively, when the summed high frequency band signal is dominant to

12   provide left and right processed signals at left and right surround channel outputs,

13   respectively; and

14   combining the left bass band signal and the left processed signal and the right bass

15   band signal and the right processed signal to provide left and right front output signals at left

16   and right front channel outputs, respectively.

1   **14.**   A process according to claim **13** further comprising the step of filtering the

2   summed high frequency band signal over the preselected bandwidth to provide a center front

3   output signal at a center front channel output.

1   **15.**   A process according to claim **14** further comprising the steps of:

2   differencing the left and right high frequency band signals to provide a differenced

3   high frequency band signal; and

4   filtering the differenced high frequency band signal over the preselected bandwidth to

5   provide a center surround output signal at a center surround channel output.

1   **16.**   A process for dynamically decoding two channel stereo into multi-channel

2   sound comprising the steps of:

3   splitting a left input signal and a right input signal into left and right bass and high

4   frequency band signals, respectively;

5   dynamically filtering the left and right high frequency band signals over a preselected

6   bandwidth to provide left and right dynamically filtered signals, respectively;

7   summing the left and right high frequency band signals to provide a summed high

8   frequency band signal;

9   determining when the summed high frequency band signal is dominant;

10   subtracting the right and left dynamically filtered signals from the left and right high

11   frequency band signals, respectively, when the summed high frequency band signal is

12   dominant to provide left and right processed signals at left and right surround channel

13   outputs, respectively; and

14   combining the left bass band signal and the left processed signal and the right bass

15   band signal and the right processed signal to provide left and right front output signals at left

16   and right front channel outputs, respectively.

1   **17.** A process according to claim **16** further comprising the step of dynamically

2   filtering the summed high frequency band signal over the preselected bandwidth to provide

3   a center front output signal at a center front channel output.

1   **18.** A process according to claim **17** further comprising the steps of:

2   differencing the left and right high frequency band signals to provide a differenced

3   high frequency band signal; and

4   dynamically filtering the differenced high frequency band signal over the preselected

5   bandwidth to provide a center surround output signal at a center surround channel output.

1   **19.** A process for dynamically decoding two channel stereo into multi-channel

2   sound comprising the steps of:

3   feeding left and right input signals to left and right front and surround channel outputs,

4   respectively;

5   inverting the left and right input signals;

6   summing the left and right input signals to provide a summed signal;

7   determining when the summed signal is dominant; and

8   adding the left and right inverted signals to the right and left surround channel outputs,

9   respectively, when the summed signal is dominant.

1   **20.** A process according to claim **19** further comprising the step of feeding the

2   summed signal to a center front channel output.

1   **21.** A process according to claim **20** further comprising the step of differencing

2   the right and left input signals to provide a center surround signal at a center surround channel

3   output.

1   **22.**   A process for dynamically decoding two channel stereo into multi-channel

2   sound comprising the steps of:

3   feeding left and right input signals to left and right front and surround channel outputs,

4   respectively;

5   summing the left and right input signals to provide a summed signal;

6   differencing the left and right input signals to provide a differenced signal;

7   determining which of the left input, right input, summed and differenced signals is

8   dominant;

9   generating a left/right variable dc control signal in response to dominance of one of

10   the left and right input signals;

11   generating a center variable dc control signal in response to dominance of the summed

12   signal;

13   generating a surround variable dc control signal in response to dominance of the

14   differenced signal;

15   inverting the left and right input signals;

16   attenuating the inverted left and right input signals in response to the center control

17   signal;

18   combining the left and right input signals with the attenuated inverted right and left

19   input signals, respectively to provide left and right processed signals, respectively;

20   attenuating the left and right processed signals in response to the surround control

21   signal to provide left and right attenuated processed signals;

22   combining the left and right input signals with the left and right attenuated processed

23   signals, respectively, to provide left and right front signals at left and right front channel

24   outputs, respectively; and

25   attenuating the left and right processed signals in response to the left/right control

26   signal to provide left and right surround signals at left and right surround channel outputs.

1   **23.**   A process according to claim **22** further comprising the step of attenuating the

2 summed signal in response to the left/right and surround control signals to provide a center

3 front signal at a center front channel output.

1   **24.**   A process according to claim **23** further comprising the step of attenuating the

2 differenced signal in response to the left/right control signal to provide a center surround

3 signal at a center surround channel output.

1   **25.**   A process according to claim **22** further comprising the step of generating a

2 frequency variable dc control signal which is proportional to the quantity of high frequency

3 information contained in the summed signal in response to dominance of the summed signal,

4 said step of combining signals to provide left and right attenuated processed signals

5 comprising the substeps of:

6   filtering the attenuated inverted right and left input signals over a preselected

7 bandwidth in response to the frequency control signal; and

8   combining the filtered right and left signals with the left and right input signals,

9 respectively.